MEDICAL EDUCATION AND INSTITUTIONS.

ART. XII.—*The Royal College of Surgeons, in London, with an Abstract of the Case of Thomas Tipple.* By PLINY EARLE, M.D.

THE Institution of the Royal College of Surgeons, in London, is probably more extensive and complete than that of any other association of the kind in the world. Their building is situated upon the southerly side of Lincoln's Inn Fields, and its front is decorated with an imposing Corinthian portico. Exclusive of the very extensive museum, the building contains a large lecture-room, a library of many thousands of volumes, and various rooms for the accommodation of the members.

The lectures delivered in the college are conducted with a degree of ceremony which savours of a monarchical government, and which, in the time of Molière, would have brought like a lava torrent upon itself, and upon the profession, the burning satire of his powerful pen. The president of the association enters the hall, preceded by a man bearing a long gilded mace and a rich velvet cushion. The lecturer follows, clad in a richly wrought black silk robe, and having entered, mounts the rostrum. The cushion, with the mace upon it, is placed upon his desk, and the president takes a seat directly in front of him, in a chair specially devoted to the presiding officer. Things being thus arranged, the lecture proceeds as at other places, the lecturer, like the professors in the United States, but unlike those of France, standing while he addresses the audience.

The museum, which is still called the "Hunterian Museum," in honour of the distinguished surgeon who collected the greater part of the specimens therein contained, acknowledges no rival, and indeed no equal. Those of the Royal Colleges of Surgeons in Edinburgh, Glasgow and Dublin, are fine collections, as are those of the Universities of Edinburgh and Leyden, and that of the *Musée Dupuytren* of Paris; whilst the unique and splendid museum of wax casts of the human anatomy, at Florence, far outrival any other in that specific department;—but having reference to the subjects of natural history, physiology, and comparative and pathological anatomy, the Hunterian collection must be acknowledged as pre-eminent above all others.

Having letters to William Clift, the learned and affable conservator of this museum, I went to the college, delivered them, and was invited into his study, where he was engaged in painting a sketch of the skeleton of a fossil animal. He accompanied me through the museum, at this and at subsequent times, and placed my name upon the books, which entitled me to visit it whenever I pleased, while in the city. He also showed me some animalculæ, which have made much noise in the learned world, those which Mr. Crosse pretends to have developed by the action of the galvanic fluid upon a solution of the silicate of potassa. Among things existent, the Museum of the Royal College of Surgeons is, nearer than any other object, the idol of William Clift; and of beings non-existent, John Hunter, the chief contributor to that museum, possesses the largest share of his affections. He is never weary of conversing upon either the former or the latter. He assisted that eminent surgeon, for years, in the preparation of his specimens, and testifies to the unparalleled industry with which his "master" labored in their accumulation and preservation. He related many anecdotes, illustrative of his habits and of his character.

Hunter was remarkably fond of domesticated animals, and tried a vast number of experiments upon them. Especially was he attached to bees of which he kept some in his garden. He would play with these, and take them up and handle them with impunity, talking to them like children to their dolls, as if they were able to comprehend every syllable that was spoken. Those of which he was most particularly fond, and wished to remember, he marked with paint, upon the wings. He was a stern and unyielding disbeliever in the power and efficacy of animal magnetism. Willing, however, to have its potency tested upon himself, he once submitted to the infliction of the magic "passes" of one of the sapient professors of that wonder-working art. What, under other circumstances, might have been the success of the experiment, we are unable to decide, being prevented from knowing, by certain significant twinges in the great toe of the surgeon, which gave ominous indications of an attack of the gout. These so tortured his body, racked his nerves and engaged his attention, that the potent quietus of the professor became absolutely nullified.

But let us turn from the man, to the monument which he has left behind him. The principal hall of the museum is eighty-six feet long, forty feet wide, and three stories high. It is lighted, exclusively, from the roof. Around the second and third stories there are narrow galleries, four or five feet in width, protected by a balustrade. These are sufficiently wide to accommodate visitors, or others, in examining or arranging the specimens, while, being so narrow in comparison with the hall, they leave the view comparatively unobstructed. The *coup d'œil* of the vast multitude of preparations, most of which are enclosed in glass jars, is probably finer than that of any other museum of the kind.

In the first story, the cases around the sides of the room are devoted to natural history and comparative anatomy, the specimens being arranged according to the classes reptilia, pisces and mammalia, and the several orders which these include. Placed lengthwise of the room, so as to leave a broad aisle in the middle, and a narrower one upon either side, are table-like cases, with glass covers, and drawers underneath the upper compartment. These contain a great variety of dried anatomical preparations, fossils, bones, shells, zoophytes, and miscellaneous curiosities. Between the entrance-door and the last-mentioned cases, stand, on the left, a skeleton of the hippopotamus amphibius, and, on the right, the pelvis, part of the vertebræ of the tail, and the bones of one leg of the Megatherium Cuvieri. Half-way down the hall, and in range with the cases between the aisles, stands, on the right, the skeleton of O'Byrne, the Irish giant, and, opposite to it, on the left, a plaster cast of an Ethiopian. At the lower end of the room, directly in front of the entrance, and facing it, is the skeleton of the elephant that formerly belonged to the menagerie at Exeter Change. These preparations are all elevated upon pedestals from three to five feet in height.

The second story is occupied by a series of preparations illustrative of physiology. The number of these specimens is two thousand two hundred and twenty-three. They are described in three large quarto catalogues, comprising several hundred pages.

In the third story, the first series, which includes six hundred and fourteen preparations, are illustrative of natural history. The series commences with a germinated pea, and extends, from gradation to gradation, through vegetable existence, and, subsequently, through the polypi, echinodermatæ, tunicatæ, acephalæ, gasteropodæ, pteropodæ, cephalopodæ, entozoæ, annelidæ, cirripedæ, crustaceæ, myria-podæ, arachnidiæ, and insectæ. Next follows a series including fish, reptiles, birds and quadrupeds, of which the number exceeds that of the last-mentioned department. These two series occupy one side of the hall. On the other are pathological specimens and preparations of monsters. Of the pathological series, one thousand and eighty-four are numbered and described in catalogues, but a large number remain unmarked. The series of monsters contains between three and four hundred preparations. They are arranged under four divisions—viz: 1st, preternatural situation of parts; 2d, addition of parts; 3d, deficiency of parts; and 4, hermaphrodites. The first of these is subdivided into, (*a*) "without deficiency," and (*b*) "with deficiency."

Besides this principal hall, there are two or three small adjacent rooms, which contain such a number of preparations that, in many places, it would be considered a large collection.

The elephant, the skeleton of which has been mentioned, was killed by musket balls, no less than eighty of which were shot into his head. A caries in his right tusk had, for a long time, subjected him to a periodical pain in the face, which, driving him to madness, rendered him wholly unmanageable. William Clift saw him but a few minutes before he was shot; he was at that time raving from the effects of the periodical pain, and his eyes were red and flashing with fury. In relation to the skeleton of the Irish giant, we may introduce the following extract from the "*Annual Register Chronicle*" for June, 1783.

"Died, in Cockspur Street, Charing Cross, aged only 22, Mr. Charles Byrne, the famous Irish giant, whose death is said to have been precipitated by excessive drinking, to which he was always addicted, but more particularly, since his late loss of all his property, which he had simply invested in a single bank-note of 700 pounds (sterling.) Our philosophical readers may not be displeased to know, on the credit of an ingenious correspondent, who had an opportunity of informing himself, that Mr. B., in August, 1780, measured 8 feet; that, in 1782, he had gained two inches, and, after he was dead, he measured 8 feet 4 inches."

No other member of the family of this remarkable man was of an extraordinary size. The skeleton measures upwards of eight feet in height, the tibia alone being twenty-one and a half inches in length. By the side of this *lusus naturæ*, and upon the same pedestal, is another equally remarkable for the opposite extreme of development. It is the skeleton of a dwarf female, named Crachami, who was born near Palermo, in Sicily, in 1814, and subsequently exhibited in London and other places. She died in 1824. Sir Everard Home, in his lectures on comparative anatomy, holds the following language in reference to this extraordinary girl:

"An Italian woman, twenty years of age, when, by her reckoning, three months gone with her fourth child, was travelling in a carriage, with the baggage of the Duke of Wellington's army, on the continent. In the middle of the night, in a violent storm, when she had fallen fast asleep, a monkey that had been chained on the *top* of the caravan, in its fright, found its way *into* it, and, as the warmest berth it could find, got under her loins. Half asleep, she put her hand down to scratch herself: but, scratching the monkey, it bit her fingers, and threw her into fits. She did not miscarry, but went her full time. The child, when born, only weighed *one pound*, and measured *seven inches* in length. It was reared with difficulty, and was carried by its parents to Ireland, where it became consumptive. It was brought to London and shown as a curiosity, and died just after it completed its ninth year. I saw it several times while alive, and it came into my possession after death. Its skeleton is preserved in the museum of the College of Surgeons, in London, and measures 21 inches (in height).

"Upon examination of the body after death, the fontanelle was found closed. There was no fat in any part, but in the sockets of the eyes, behind the balls. The uterus had not been developed beyond that contained in a fœtus of four months; the bladder was distended with urine, to the size of a hen's egg. As the child had never made water freely from its birth, the bladder had probably been injured at the time the monkey alarmed the mother.

"On comparing the ovaria with those of an abortion at three months, they were nearly of the same size. The child, when I saw it, could walk alone, but with no confidence. Its sight was very quick, (it was) much attracted by bright objects, delighted with every thing that glittered, mightily pleased with fine clothes; had a shrill voice, and spoke in a low tone; had some taste for music, but could speak few words of English; was very sensible of kindness, and quickly recognized any person who had treated it kindly. The mother has had a fifth child in Ireland, which, like her first three children, is naturally formed."

The thoracic duct was comparatively large, and contained no obstruction. Hence, the deficiency of growth could not have arisen from an impossibility of the chyle to pass into the circulation. It is suggested that the distension of the bladder might have been caused by the irritation of a large blister which had been placed upon the abdomen. Neither the carpal bones, nor the patellæ present any traces of ossification, and the calcis, astragalus, and cuboides are the only bones of the tarsi which are ossified. The cartilages still exist between the several portions of the sternum, and of the pelvis. All the epiphyses remain unossified. The teeth and the bones of the cranium are perfect.

Under a large bell-glass standing upon the same pedestal with the skeleton of the elephant, is a dry preparation of a remarkable case of exostosis, or osteo-sarcoma, of the tibia. This was presented to the College in 1807, by William Long, Esq., and, according to his account, consists of "the original bones described in Cheselden's *Osteographia*, and figured in table 53, figures 1, 2, and 3." The amputation was performed by Jeremiah Pierce, a surgeon of Bath, in 1745, and a history of the case is recorded in the Philosophical Transactions, No. 452, p. 56. "Upon taking off the limb," says the surgeon, "I found it weighed, with the leg and foot, sixty-nine pounds, which, to the best of my remembrance, is twenty-seven pounds more than the leg, some years since taken off at St. Bartholomew's Hospital, by Mr. Gay, for the like disorder." The substance of the tibia is nearly destroyed by the exostosis, and the fibula is altered in shape by the pressure of the tumour of the other bone. The tumour, or the osseous part of it, which alone remains, presents the porous, spongy, honeycomb-like appearance peculiar to tumours of this description. Its diameter is, perpendicularly, ten inches, laterally twelve inches, and antero-posteriorly nine inches.

Upon the same pedestal there is a frame enclosing a picture of the anterior and of the posterior portions of the body of a patient who recovered from a wound of such severity as, *à priori*, would have been believed to be fatal. The following is a brief history of the case.

John Taylor, a Prussian, aged 20, in May, 1831, was employed in the early part of that year, on board the brig Jane, of Scarborough. On Saturday, February 6th, the vessel lying at the time in the London docks, he was at work on board, and, while guiding the pivot of the trysail mast into the main boom, the tackle gave way, the pivot struck and penetrated his breast, traversed the body in an oblique direction, and coming out behind, entered the deck. The trysail mast which drove this pivot through his body, was thirty-nine feet long, and weighed about six hundred pounds. The pivot, which is still preserved in the museum, is blunt, one inch in diameter, and but five inches in length. This entered the thorax on the left side, near the sternum, in the region of the cartilages of the third and the fourth ribs, and came out at a point between the tenth and eleventh ribs, a little anterior to a perpendicular drawn from the lower angle of the scapula. Upon comparing the distance between these two points, it will easily be perceived that the body must have been compressed to an inordinate degree to permit the iron to pass through, and even to enter the plank of the deck. The patient received several other injuries at the same time. His scalp was laid open, and his lower jaw and four ribs fractured. He was carried to the London Hospital, where, under the care of John Andrews, he was so nearly cured, in the course of five months, that he walked from the Hospital to the College of Surgeons and back again. He ultimately returned to his occupation as seaman. During his confinement, portions of the fractured ribs and jaw exfoliated.

In June, 1837, a few days previous to my first visit to the College of Surgeons, Taylor, being in port, called upon William Clift to let him know that he enjoyed perfect health.

Another preparation upon the pedestal, with the skeleton of the elephant, is that of the anterior parietes of the thorax of a man, whose case, being one of the most remarkable upon record, I shall give somewhat in detail, though very much abridged from the original, which was drawn up by J. W. Parkinson.

Thomas Tipple, arriving at the house of John Overton, at Stratford, near London, on the evening of the 13th of June, 1812, and the groom being absent, took off his coat and began to unharness the horse. Being undoubtedly not very well versed in the trade of an ostler, he commenced by taking off the bridle. This being removed, the horse sprang forwards, and the end of one of the shafts of the gig struck Tipple upon the left breast, pierced the parietes, traversed a portion of the thorax, came out upon the right side, and penetrated the sheathing of the house. The first persons who arrived upon the spot, after the accident, were Edward and Henry Lawrence. They testify that they found him standing upon tiptoe, with both his arms extended. Although thus completely impaled, he was able to put his hand upon the end of the shaft and assist in drawing himself off. Being released, he respired two or three times without difficulty, and there was no inordinate agitation of the body. The wound did not bleed very freely, and the patient went into the house, took off his vest and walked up two flights of stairs. He was undressed, when there was a tendency to syncope, and "the trickling of blood upon the lungs" caused a difficulty of respiration. He sat in his bed until, upon being bled, that difficulty was relieved. The venesection was prescribed by William Maiden, a surgeon, who was called about nine o'clock. He found a hemorrhage from the wound on the left side of the thorax, made by the iron on the under side of the shaft of the gig. Air was also issuing from the wound, indicating a severe lesion of the vesicles of the lungs. The quantity of blood taken from the vein was about four pounds avoirdupois. The patient was permitted to drink a little cold water. At eleven o'clock, Sir William Blizzard arrived, and upon an examination of the patient, found the wounds to be each about four inches in length, while the left shoulder and chest were slightly emphysematous. Anticipating a reaction of the circulation, which he presumed would be hastened by the venesection, and which might occasion a profuse hemorrhage from the wounds, he prognosticated a fatal termination before morning.

June 14, eight o'clock, A.M. The patient was in nearly the same condition as when left on the previous evening. He obtained some sleep, and cold water was given to prevent hemorrhage. At noon on this day, Sir William Blizzard ordered an infusion of roses, with one drachm of the sulphate of magnesia, to be taken at intervals of six hours.

15*th*. Eight o'clock, A.M. Dyspnœa increased; considerable pain, and a sensation of weight and of soreness about the thorax. Venesection to the extent of thirty ounces produced much relief. Later in the day, there was some nausea and a sensation of fulness of the stomach and bowels. An enema and castor oil were administered in the evening, and five grains of calomel at bedtime.

16*th*. Eight o'clock, A.M. The calomel operated gently two or three times. The patient restless, and vomiting frequently; a pain in the region of the diaphragm; soreness of the chest, and difficult respiration. Eighteen ounces of blood were taken from the arm, and the enema repeated. In the afternoon the emesis continued, but the dyspnœa was relieved; hiccups had commenced, and these, with the vomiting, were overcome by the effervescing draught; at night the patient appeared to be very near the close of life.

17*th*. He passed a better night, obtaining more sleep than heretofore. The soreness and dyspnœa having increased, they were mitigated by the abstraction of seventeen ounces of blood from the arm.

18*th*. The breathing very laborious, but it was made easier by another depletion of twenty ounces of blood. Still, however, a tenderness of the chest and epigastrium remained. Calomel had been administered every evening hitherto, and had operated freely; it was ordered to be continued, with the occasional addition of Epsom salts and senna, and a large blister was placed upon the sternum.

19*th*. The aperient was continued.

20*th*—*Evening*. The dyspnœa was so great as to induce a resort to venesection; nineteen ounces of blood were taken. This day several threads of flannel were seen in the wound under the right arm. They remained there several days afterwards.

21st. The aperient was continued, and the patient permitted to eat a small quantity of broth.

22d. The pain and difficulty of respiration were less than at any previous time, but there was a "peculiar sensation" about the chest. "Sir William Blizzard advised the abstraction of more blood," but we are not informed how much was taken, or, indeed, whether the advice was followed by the abstraction of any. The patient sat up in his bed for the first time, and his shirt and flannel waistcoat, which had become offensive, were removed. The wounds were examined, and it was found that there was no injury of the back, not even to a discoloration of the skin. The physicians were now convinced that the spine had escaped unharmed, yet they thought the internal injury so extensive that the patient could not recover. It was impossible to conceive how the lungs had escaped. At this time a sensation of smarting was felt along the course of the wound. A blister larger than that previously applied, was placed upon the sternum; the bowels were frequently moved by purgatives, and fourteen ounces of blood were taken from the arm; this was the last resort to venesection.

28th. There appeared to be a reasonable hope of recovery.

Subsequently to this date, the aperients were continued, and the blister kept open several days. For eight or ten days there were indications of inflammation of the liver, and insomnia at night, to which there was a tendency, was prevented by opiates. At the end of nine weeks the wounds were nearly closed.

After the cure was effected, there was a depression of two or three of the costal cartilages of the left side, causing a concave cicatrix near the fifth rib. The cicatrix of the right side was somewhat lower.

Sir William Blizzard commends Mr. Maiden for forbearing to use either a probe or his finger, in the examination of the wounds, and adds: "Many lives have been sacrificed to the gratification of curiosity, by researches into the direction and extent of wounds in the body."

Tipple was thirty-four years of age when he received this remarkable wound. His digestion, at the time, was impaired, but it was much improved after his recovery. His general physical strength was less after the accident, and there remained a soreness of the chest and a liability to difficult respiration upon making any inordinate exertion. During the first five years immediately following his recovery, it required less exercise than formerly to put him "out of breath." His health, however, became impaired by gout and rheumatism, and near the termination of this period, J. W. Parkinson was called to him. He found him suffering from dyspnœa; his countenance expressed anxiety; pulse irregular; heart struggling. A copious venesection produced relief. On the next morning there was a recurrence of the same symptoms, which were again met by depletion from the circulation. The patient improved immediately, and soon attended to his customary occupation. At subsequent periods, however, he had other attacks, which were generally induced by bodily or mental exertion, irregularity of diet, or exposure. He was treated by bleeding, purgatives, digitalis, blisters, low diet and rest. These attacks became more frequent during the last two years of his life. In one of them mercury was employed until it produced a slight ptyalism, and this remedial agent, with digitalis and bleeding, was the only curative means resorted to in several of the last attacks.

About six weeks before his death, having been exposed to the night air he was attacked with inflammation of the mucous membrane of the lungs, accompanied by dyspnœa, uneasiness of the upper portion of the thorax, cough and expectoration of a glairy mucus. Ten days before his death, his legs and thighs, which had been œdematous, became suddenly reduced, by an absorption of the liquid. He lost his strength, became pallid, and suffered so much from dyspnœa that he was bled about a week previous to his decease. Relief was obtained, but the action of the heart became feeble, and great distress was depicted in his countenance.

Sunday, March 2, 1823. He was assisted in going down stairs, when, upon attempting to speak, his voice failed and he suddenly expired.

Autopsy, March 4. *Thorax* distorted anteriorly. There is an angular projection at the union of the superior and middle portions of the sternum, and a depression upon either side of that bone. That on the left is the larger; it commences four and a half inches from the middle of the sternum, and extends forwards in the intercostal space between the second and third rib, the distance of three inches. That on the right begins three inches from the middle of the sternum, and extends backwards two inches between the second and the third rib. On the left side, behind the margin of the pectoralis major muscle, are two cicatrices, the larger of which is one and a half inches in diameter. Between the third and the fourth rib of the same side, and adjacent to the place at which the tug iron probably entered, there is an external depression, as if made with the end of the finger. The integuments being removed, there appears to be no injury except on the anterior surface. The pectoralis major and minor muscles are both atrophied. The latter covers and adheres to a membranous substance one and a half inches long and one inch wide, occupying the space between the second and the third rib on either side. In these spaces there are no vestiges of the intercostal muscles. The lung is visible through the membrane, which is composed of two laminæ surrounded by condensed cellular tissue. This tissue is connected, by fascia-like bands, to the surrounding intercostal muscles.

The cartilage of the second rib is fractured in the middle, and the ends of the two portions are a quarter of an inch asunder, but connected by an intervening ligament. The rib, also, has been fractured two and a half inches posterior to the division in the cartilage. This piece of rib is turned upon its axis, so that the inferior edge is inward and upward, and has become similar to the inner and superior edge of the posterior portion of the rib. It thus forms a projection of half an inch in the interior of the thorax. The external depression is three-eighths of an inch in depth. The cartilage of the third and of the fourth rib are fractured and united by ossification. That of the third is a little curved. *The space closed by a membrane*, and one inch in diameter upon the right side, is circular. The third rib is fractured, its sternal portion is diminished, and its superior edge is one-eighth of an inch lower than that of the spinal portion. The angular projection, near the upper part of the sternum, is caused by the first and second divisions of the bone being severed and turned outwards, so as to form an obtuse angle, at a point between the cartilages of the first and the second rib. The disunited ends are enlarged and connected, externally, by a ligament which admits of a slight motion.

The lungs adhere to the pleura posteriorly. On the right side there is more than an ounce of serum in the cells of the adhesion. On the left side, anteriorly, the lung adheres to the inferior part of the displaced portion of the second rib, and to the internal surface of the membrane which encloses the space devoid of muscular fibre.

The lungs are dense and of a deep livid color. A small part of the lower lobe of the left lung is entirely normal. The right lung adheres to the membrane heretofore mentioned, as well as to the surrounding parts, to an extent of one and a half inches in diameter. The rest of the anterior portion presents no pathological appearance.

The pericardium is attached to the heart throughout nearly the whole of its surface. The adhesions are easily broken. There is nearly a teaspoonful of fluid in the cavity and near the apex of the heart.

The heart is augmented in volume, the right auricle being more so than either of the other cavities.

The abdominal and pelvic viscera are normal. It is found that the wounds in the integuments do not precisely correspond with those of the parietes. This position of things undoubtedly facilitated a cure, and was probably owing to the fact, that the arms were raised at the moment of the occurrence of the accident.

The preparation now preserved in the museum consists of the anterior parietes of the thorax, including the sternum and the sternal half of the first five ribs. The whole of the cicatrices and other deformities are thus exhibited. The extremity of the shaft which inflicted the wound is also preserved in the museum. It penetrated the body to the distance of twenty-one inches. The portion of that length is five inches in circumference, in the middle, and six at the larger extremity. The tug-iron underneath is three and a half inches in length. This undoubtedly entered the lungs.

The autopsy was performed under the direction of Sir William Blizzard by W. B. Harkness and William Clift, assisted by J. W. Parkinson.